1. (Currently Amended) A method of forming a semiconductor device, the method comprising:

providing a substrate;

forming a SiGe surface layer having an average Ge content less than about 10 at.% on the substrate;

depositing a high-k dielectric layer onto the SiGe surface layer;

forming an oxide layer between the high-k dielectric layer and an unreacted portion of the SiGe surface layer by oxidizing a surface portion of the SiGe surface layer, the oxide layer being formed during one or both of said depositing and an annealing process after said depositing; and

forming an electrode layer on the high-k dielectric layer.

2. (Original) The method according to claim 1, wherein the substrate is provided with an initial oxide layer prior to forming the SiGe surface layer.

3. (Original) The method according to claim 1, wherein forming the SiGe surface layer comprises performing thermal chemical vapor deposition, plasma-enhanced chemical vapor deposition, atomic layer deposition, or sputtering.

4. (Original) The method according to claim 1, wherein forming the SiGe surface layer comprises exposing the substrate to a process gas including a Ge-containing gas.

5. (Original) The method according to claim 4, wherein the Ge-containing gas comprises at least one of GeH_4 or $GeCl_4$.

6. (Original) The method according to claim 4, further comprising annealing the substrate either during said exposing, after said exposing, or both during and after said exposing.

7. (Original) The method according to claim 4, wherein the process gas further comprises a Si-containing gas.

8. (Original) The method according to claim 7, wherein the Si-containing gas comprises at least one of SiH_4, Si_2H_6, or SiH_2Cl_2.

9. (Canceled)

10. (Original) The method according to claim 1, wherein the SiGe surface layer comprises a plurality of SiGe sublayers each with different Ge content.

11. (Original) The method according to claim 1, wherein the SiGe surface layer comprises a graded Ge content.

12. (Canceled)

13. (Original) The method according to claim 1, wherein the SiGe surface layer is less than about 1000 angstroms thick.

14. (Original) The method according to claim 1, wherein the SiGe surface layer is between about 10 angstroms and about 300 angstroms thick.

15. (Original) The method according to claim 1, wherein the high-k dielectric layer comprises at least one of HfO_2, $HfSiO_x$, ZrO_2, $ZrSiO_x$, TiO_2, Ta_2O_5, Al_2O_3, or SiN.

16. (Original) The method according to claim 1, wherein the high-k dielectric layer is between about 5 angstroms and about 60 angstroms thick.

17. (Original) The method according to claim 1, wherein the providing comprises introducing a Si substrate into a process chamber of one of a single wafer processing system and a process chamber of a batch-type processing system.

18. (Original) The method according to claim 1, further comprising etching the electrode layer and the high-k dielectric layer.

19. (Original) The method according to claim 1, wherein the oxide layer is formed during the annealing process by exposing the substrate to an oxygen-containing gas.

20. (Currently Amended) A method of forming a semiconductor device, the method comprising:

providing a substrate;

forming a SiGe surface layer having an average Ge content less than about 10 at.% on the substrate;

depositing a high-k dielectric layer onto the SiGe surface layer;

annealing the substrate having the SiGe surface layer and high-k dielectric thereon; and

forming an electrode layer on the high-k dielectric layer,

wherein at least one of the depositing and the annealing comprises oxidizing a surface portion of the SiGe surface layer by exposing the substrate to an oxygen-containing gas to form an oxide layer between the high-k dielectric layer and an unreacted portion of the SiGe surface layer.

21. (withdrawn) A semiconductor device comprising:

a substrate having a SiGe surface layer with an average Ge content less than about 10 at.% and an unreacted portion;

a high-k dielectric layer on the SiGe surface layer;

an oxide layer between the high-k dielectric layer and the unreacted portion of the SiGe surface layer; and

an electrode layer on the high-k dielectric layer.

Claims 22-25 (Canceled)

26.(Currently Amended) A method of forming a semiconductor device, the method comprising:

providing a single crystal silicon or polycrystalline silicon substrate;

forming a SiGe surface layer having an average Ge content less than about 10 at.% on the substrate;

depositing a high-k dielectric layer onto the SiGe surface layer;

forming an oxide layer between the high-k dielectric layer and an unreacted portion of the SiGe surface layer by oxidizing a surface portion of the SiGe surface layer, the oxide layer being formed during one or both of said depositing and an annealing process after said depositing; and

forming an electrode layer on the high-k dielectric layer.